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EXAMINER	
FLORES, LEON	
ART UNIT	**PAPER NUMBER**
2635	

DATE MAILED: 10/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/511,859	HERZBERG, HANAN	
	Examiner	Art Unit	
	Leon Flores	2635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 October 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

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SUPERVISORY PATENT EXAMINER

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/18/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 6-9, 28, 30-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Van Den Brink et al. (US Pub 2003/0174765 A1).

Re claim 1, Van Den Brink et al. discloses a method of analyzing the performance of a modem connection (see Fig. 1: 1, see paragraphs 68 & 91), comprising: connecting a line interface to a communication link carrying signals of a modem connection, between a pair of end modems (see Fig. 1); collecting signals passing on the communication link, between the end modems, through the line interface (see Fig. 1 & paragraph 93); determining quality or transmission characteristics regarding the modem connection, responsive to signals collected through the line interface (see paragraph 69); and displaying information on the determined characteristics (see Fig. 7 & paragraph 145).

Re claim 2, Van Den Brink et al. discloses a method according to claim 1, wherein the modem connection comprises a full-duplex modem connection (see paragraph 91 which recites that the modems are xDSL transceivers. It is very well known in the art that the xDSL family of modems are capable of operating in full-duplex mode).

Re claim 3, Van Den Brink et al. discloses a method according to claim 1, wherein the modem connection comprises an ADSL modem connection (see paragraph 91 which recites that the modems are xDSL transceivers)

Re claim 6, Van Den Brink et al. discloses a method according to claim, wherein collecting signals passing on the communication link comprises collecting without sending to either of the modems acknowledgment signals or any other modem tangible signals.(see Fig. 1 & paragraph 93. The line interface is placed in between the two modems 6 & 7. Its function is to analyze the quality/characteristics of the line by measuring/examining the signals flowing through the line. It is inherent that it doesn't need to send any acknowledgement or signals to any of the modems at each end.)

Re claim 7, Van Den Brink et al. discloses a method according to claim 1, wherein displaying information on the determined characteristics comprises displaying the contents of one or more modem negotiation signals. (see Fig. 7)

Re claim 8, Van Den Brink et al. discloses a method according to claim 1, wherein displaying information on the determined characteristics comprises providing information on noise levels on the connection. (see Fig. 7)

Re claim 9, Van Den Brink et al. discloses a method according to claim 8, wherein providing information on noise levels on the connection comprises suggesting possible sources of the noise. (see paragraphs 5-8)

Re claim 28, Van Den Brink et al. discloses a modem connection performance analyzer, comprising: a line interface adapted to collect signals of a modem connection passing on a communication link, between two end modems connected to the link; a processor adapted to determine one or more quality or transmission characteristics regarding the modem connection, responsive to the collected signals; and a human interface adapted to provide information on the determined characteristics.
(This claim is system claim comprising elements that would have necessitated from the corresponding steps of method claim 1. Therefore, it has been analyze and rejected with respect to claim 1.)

Re claim 30, Van Den Brink et al. discloses a method of monitoring an xDSL modem connection, comprising: connecting a line interface to a communication link carrying signals of an xDSL modem connection, between a pair of end modems separate from the line interface; collecting signals passing between the end modems on

the communication link, through the line interface; and providing information on the modem connection, responsive to the collected signals. (This method claim has been analyzed and rejected in view of the method claim recited in claim 1.)

Re claim 31, Van Den Brink et al. discloses a method according to claim 30, wherein providing information on the modem connection comprises providing information on the operation of the connection. (see paragraphs 68 & 69.)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Den Brink et al. (US Pub 2003/0174765 A1)

Re claim 4, Van Den Brink et al. discloses a method according to claim 1, although Fig. 1 depicts the line interface being placed at a specific distance closer to one of the modems, and farther away from the other modems, it fails to explicitly disclose the following:

wherein connecting the line interface to the communication line comprises connecting at a point at least two times closer to one of the modems than the other modem.

The examiner takes official notice that when a base station decides to conduct a number of tests between two or more modems, one of the modems may be closer to the line interface than the other modem in order to analyze at a close distance the signals being transmitted from that particular modem. Therefore, it would have been obvious to one of ordinary skill in the art to have placed the line interface closer to one of the modems for the benefit of obtaining compensation for any restrictions associated with the transmission of signal into the line.

Re claim 5, Van Den Brink et al. discloses a method according to claim 1, wherein connecting the line interface to the communication line comprises connecting at a point at most two times closer to one of the modems than to the other modem. (This claim has been analyzed and rejected in view of claim 4 above.)

Claims 10-12,14-15,17-18, 20-25, 27, & 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Den Brink et al. (US Pub 2003/0174765 A1), and in view of Zuranski et al. (US Pat. 6,445,733 B1)

Re claim 10, Van Den Brink et al. discloses a method according to claim 8, wherein displaying information on the determined characteristics comprises providing information on effects in upper physical layers caused by the noise levels on the connection. (In Zuranski et al., see col. 7, lines 63-65, & col. 8, lines 15-25. The coding allows the receiving modem to determine, based on the value of the receiving signal, whether or not a given signal element is received in error.)

Re claim 11, Van Den Brink et al. discloses a method according to claim 1, wherein displaying information on the determined characteristics comprises providing information on the symbol mapping used by the connection. (In Zuranski et al., see col. 7, lines 43-52. Since the modems are coupled to a computer, and the computer has a display means, we can therefore conclude that these points can be view from the computer.)

Re claim 12, Van Den Brink et al. discloses a method according to claim 1, but fails to teach the following:

wherein displaying information on the determined characteristics comprises displaying information on signaling signals transmitted in parallel to data transmission. However, Zuranski et al. does. (see col. 5, line 24-27)

Zuranski et al. discloses a method of characterizing a subscriber line in a communication system. The method includes providing a test signal on a control channel distinct from the communication channel from the first modem to the second modem, where both modems are coupled/connected to a computer, across the subscriber line under a plurality of conditions. The test signals are communicated in a non-destructive manner with respect to the data, such as, on separate channels or frequency bands or at low level amplitudes. Furthermore, since the modems are coupled to a computer, and the computer has a display means, we can therefore conclude that this information can be view from the computer.

By taking the combined teaching of Van Den Brink et al. & Zuranski et al. <u>as a whole</u>. It would have been obvious to one of ordinary skill in the art to have modify the display unit in Van Den Brink et al. to incorporate this information, as taught in Zuranski et al., for the benefit of preventing any interference between the test signals and the data, as taught in Zuranski et al., for optimizing the data rate in Van Den Brink et al.

Re claim 14, Van Den Brink et al. discloses a method according to claim 1, comprising injecting by the performance analyzer noise (In Van Den Brink et al., see Fig. 1: 3 & 8) which forces a retrain of the modem connection (The motivation for combining these two references has already been established in claim 12 above.

Having said this, we can therefore proceed in analyzing the limitations in this claim in the following manner. In Zuranski et al., see col. 9, line 13-30, & col. 10, line 1-17. If there is a change in the line, such as noise, error processor 96 and rapid retrain circuit 94 are able to retrain the modems in a rapid manner.)

Re claim 15, Van Den Brink et al. & Zuranski et al. disclose a method according to claim 14, wherein injecting the noise comprises injecting noise in a manner which does not substantially interfere with a different connection passing on the communication link. (In Zuranski et al., see col. 10, line 47-50, & col. 14, line 25-37. The test signal, which can be noise as recited in col. 14, lines 47-50, can operate in a separate channel.)

Re claim 17, Van Den Brink et al. & Zuranski et al. disclose a method according to claim 14, wherein the modem connection comprises a DSL connection. (In Van Den Brink et al., see paragraph 91 where it recites that the modems are xDSL transceivers.)

Re claim 18, Van Den Brink et al. & Zuranski et al. disclose a method according to claim 17, wherein the injected noise does not interfere with voice frequency bands of the communication link. (In Zuranski et al., see col. 10, line 47-50, & col. 14, line 25-37. The test signal, which can be noise as recited in col. 14, lines 47-50, can operate in a separate channel.)

Re claim 20, Van Den Brink et al. discloses a method according to claim 1, comprising identifying changes in the operation of the modem connection and providing suggested causes of the changes. (The motivation for combining these two references has already been established in claim 12. In Zuranski et al., see col. 7, lines 26-41 & col. 10, lines 1-17. Error processor 96 and rapid retrain circuit 94 are able to determine what changes on the line have caused errors.)

Re claim 21, Van Den Brink et al. & Zuranski et al. disclose a method according to claim 20, wherein identifying changes comprises identifying a retrain. (In Zuranski et al., see col. 9, lines 13-30.)

Re claim 22, Van Den Brink et al. & Zuranski et al. disclose a method according to claim 20, wherein identifying changes comprises identifying a bit swap. (In Zuranski et al., see col. 19, lines 19-25. Each signal element is assigned a coded binary value representing the element's phase and amplitude. The coding permits the receiving end to determine, based on the value of the receiving signal, whether or not a given signal element is received in error.)

Re claim 23, Van Den Brink et al. & Zuranski et al. disclose a method according to claim 20, wherein providing suggested causes of the changes comprises identifying, for at least one change, a noise that caused the change. (In Van Den Brink et al., see

paragraph 5-8)

Re claim 24, Van Den Brink et al. discloses a method according to claim 1, comprising identifying data retransmissions and providing suggested causes of the data retransmissions. (The motivation for combining these two references has already been established in claim 12. In Zuranski et al., see col. 7, lines 26-41 & col. 10, lines 1-17. Error processor 96 and rapid retrain circuit 94 are able to determine what changes on the line have caused errors. Once the modems are retrained, and new parameters have been assigned, data can be retransmitted in a rapid manner.)

Re claim 25, Van Den Brink et al. discloses a method according to claim 1, wherein displaying information on the determined characteristics comprises displaying a raw bit content of signals transmitted on the modem connection. (The motivation for combining these two references has already been established in claim 12. In Zuranski et al., see col. 8, lines 11-25. Each signal is assigned a binary code representing the amplitude and phase. Again, since each modem are coupled to a computer, this binary code can, therefore, be displayed in a screen.)

Re claim 27, Van Den Brink et al. discloses a method according to claim 1, comprising extracting the data transmitted on the modem connection. (The motivation for combining these two references has already been established in claim 12. In

Zuranski et al., see col. 6, lines 66-67.)

Re claim 32, Van Den Brink et al. discloses a method according to claim 30, wherein providing information on the operation of the modem connection comprises providing data passing on the connection. (The motivation for combining these two references has already been established in claim 12. In Zuranski et al., see col. 6, lines 64-67, & col. 7, lines 1-13. The operation of the modems will be based on the rate at which data is being transmitted and received by the modems.)

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Den Brink et al. (US Pub 2003/0174765 A1), and in view of Wang et al. (US Pat. 6,523,233 B1)

Re claim 13, Van Den Brink et al. discloses a method according to claim 1, but fails to explicitly teach the following:

comprising performing signal tests on test signals transmitted on the connection and comparing the results of the tests to negotiation signals reporting test results from one of the modems. However, Wang et al. does. (see col. 3. lines 26-38)

Wang et al. discloses a system, composed of a first modem, coupled to a second modem by a telephone network. Together, it computes analog and digital impairment before establishing an actual data transmission session. The transmitting modem sends a digital test signal to the receiving modem. The received test signal is analyzed (tested) and total network is determined in the telephone network is determined by

comparing the transmitted test signal to the received test signal and identifying any differences.

By taking the combined teaching of Van Den Brink et al., & Wang et al. as a whole. It would have been obvious to one of ordinary skill in the art to have incorporated this step into the line characterization stage of Van Den Brink et al., as taught in Wang et al., for the benefit of obtaining compensation schemes that negate the effects of telephone network impairment, as taught in Wang et al., for assuring a constant signal transmission between the transmitting modem and receiving modem in Van Den Brink et al.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Den Brink et al. (US Pub 2003/0174765 A1), and in view of Fisher et al. (US Pub. 2004/0047407 A1).

Re claim 19, Van Den Brink et al. discloses a method according to claim 1, but fails to teach the following:

the modem connection comprises a voice band modem connection. However, Fisher et al. does. (see paragraph 2)

Fisher et al. discloses a method of transmitting data. It relates to a digitally connected modem, which is adapted to operate as a V.92 analog client modem.

By taking the combined teaching of Van Den Brink et al. and Fisher et al. as a whole. It would have been obvious to one of ordinary skill in the art to have modify the

modems in Van Den Brink et al., as taught in Fisher et al., for the benefit of transmitting data over telephone communication links as taught in Fisher et al., for enhancing the transmission rate protocol in Van Den Brink et al.

Claim 16 & 29, & 33-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Den Brink et al. (US Pub 2003/0174765 A1), and in view of Zuranski et al. (US Pat. 6,445,733 B1), and in further view of Fujiwara et al. (US Pub. 2001/0013809 A1).

Re claim 16, Van Den Brink et al. & Zuranski et al. disclose a method according to claim 14, but fails to teach the following:
wherein injecting the noise comprises connecting a low impedance circuit, for at least some of the frequency bands carrying signals, to the communication link. However, Fujiwara et al. does. (see paragraph 87)
Fujiwara et al. discloses a predistortion circuit with a low impedance at specific frequencies.

By taking the combined teaching of Van Den Brink et al., Zuranski et al., & Fujiwara et al. as a whole. It would have been obvious to one of ordinary skill in the art to have incorporated this low impedance circuit, as taught in Fujiwara et al, into the system of Van Den Brink et al, as modified by Zuranski et al., for the benefit of obtaining signal suppression, as taught in Fujiwara et al., for improving the characterization testing procedure of the line in the system of Van Den Brink et al, as modified by

Zuranski et al..

Re claim 29, Van Den Brink et al. discloses a performance analyzer according to claim 28, comprising a low impedance shorting circuit adapted to short at least some of the frequencies of the communication link, responsive to a command from the processor. (The motivation for combining these references has already been established in claim 16. This claim recites limitations that has already been addressed in claim 16, therefore, this claim has been analyzed and rejected in view of claim 16.) Re claim 33, Van Den Brink et al., Zuranski et al., Fujiwara et al. disclose a method of forcing a retrain on a modem connection (The motivation for combining these references has already been established in claim 16), comprising: determining at least one first frequency band to be disrupted (In Van Den Brink et al., see Fig. 1); and connecting to a communication line carrying the modem connection, between two end modems(In Van Den Brink et al., see Fig. 1), a circuit which disrupts transmission of signals on the at least one first frequency band. (This claim has been analyzed and rejected in view of claim 16.)

Re Claim 33, Van Den Brink et al., Zuranski et al., and Fujiwara et al. disclose a method of forcing a retrain on a modem connection (The motivation for combining these references has already been established in claim 16), comprising: determining at least one first frequency band to be disrupted (In Fujiwara et al., see paragraph 87); and connecting to a communication line carrying the modem connection, between two end

modems (In Van Den Brink et al., see Fig. 1), a circuit which disrupts transmission of signals on the at least one first frequency band.(In Fujiwara et al., see paragraph 87)

Re claim 34, Van Den Brink et al., Zuranski et al., & Fujiwara et al. disclose a method according to claim 33, wherein determining the at least one first frequency band to be disrupted comprises determining a frequency band including a pilot tone frequency band of the modem connection.(In Zuranski et al., see col. 5, lines 24-27. The line characteristics are determined by analyzing test signals. These test signals occupy a specific channel or frequency band in respect to other signals.)

Re claim 35, Van Den Brink et al., Zuranski et al., Fujiwara et al. disclose a method according to claim 33, wherein the circuit disrupts the first frequency band substantially without interfering with signals of a second frequency band. (In Zuranski et al., see col. 10, line 47-50, & col. 14, line 25-37. The test signal, which can be noise as recited in col. 14. lines 47-50, can operate in a separate channel. This claim has been analyzed and rejected in view of claim 15.)

Re claim 36, Van Den Brink et al., Zuranski et al., Fujiwara et al. disclose a method according to claim 35, wherein the second frequency band comprises a frequency band of voice signals. (This claim has been analyzed and rejected in view of claim 18.)

Re claim 37, Van Den Brink et al., Zuranski et al., Fujiwara et al. disclose a method according to claim 35, wherein connecting the disruption circuit comprises connecting a circuit which shorts the at least one first frequency band without shorting the second frequency band. (This claim has been analyzed and rejected in view of claim 16.)

Re claim 38, Van Den Brink et al., Zuranski et al., Fujiwara et al. disclose a method according to claim 33, wherein connecting the disruption circuit comprises connecting a circuit which injects noise at the at least one first frequency band. (This claim has been analyzed and rejected in view of claims 15 & 18.)

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Den Brink et al. (US Pub 2003/0174765 A1), and in view of Hagane (JP 409139768A)

Re claim 26, Van Den Brink et al. discloses a method according to claim 1, but the reference of Van Den Brink et al. fails to teach the following:

wherein displaying information on the determined characteristics comprises providing a warning on a possible tapping of the communication link. However, Hagane does. (see abstract)

Hagane discloses a tapping detector and telephone set with detection function. It warn the presence or absence of tapping by converting a voice signal with waveform data and compares the data with waveform data converted by an optical sound source

circuit via a voice input terminal. And the result is warned from a display device and a speaker.

By taking the combined teaching of Van Den Brink et al. & Hagane as a whole. It would have been obvious to one of ordinary skill in the art to have incorporated a display device to display possible tapping into the system of Van Den Brink et al., as taught by Hagane, for the benefit of recognizing the presence of absence of any tapping by other users, as taught by Hagane, for precluding unauthorized users from tampering, and listening to the line in Van Den Brink et al.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leon Flores whose telephone number is 571-270-1201. The examiner can normally be reached on Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vu Le can be reached on 571-270-1195. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LF
October 24, 2006

LIN YE
PRIMARY EXAMINER